



ENGINEERING SOLUTIONS
ENGINEERING & SURVEYING
50 SE 30TH STREET
LEE'S SUMMIT, MO 64082
P: (816) 623-9888 F: (816) 623-9849

Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005008319-D
Kansas
Engineering E-1695
Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

Project: VILLAGES OF CHAPEL RIDGE L3MO
Issue Date: April 10, 2020

Master Drainage Plan 1 of 3:
Grading Plan
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

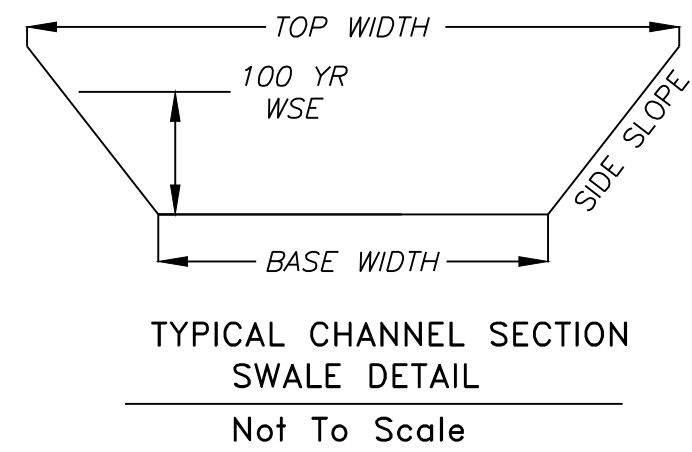
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Matthew J. Schlicht
MO PE 2006019708
KS PE 19071
OK PE 25226
NE PE E-14335

REVISIONS

6/25/2021 As-Built

C. 200



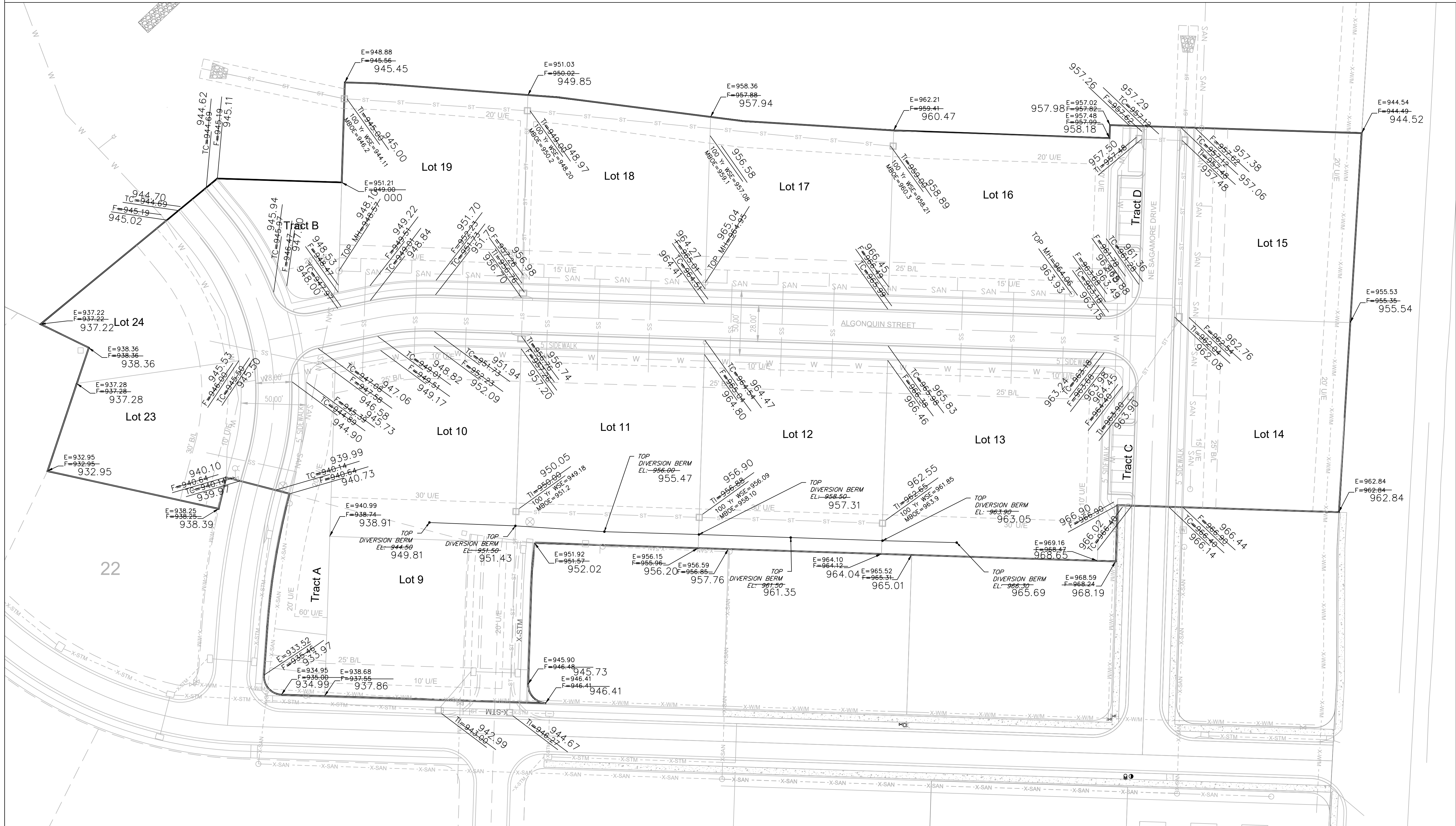
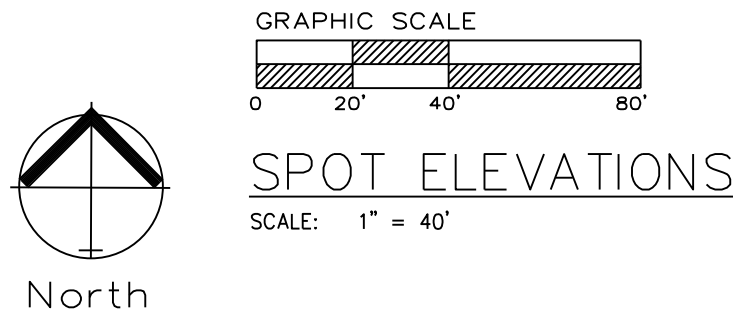
NOTE: Swale sections extend the entire length between upstream and downstream structures with the exception of a transition at each structure.

100 YEAR OVERFLOW SWALE SECTIONS									
Section	100 Yr. Runoff (c.f.s.)	Bed Slope (%)	Base Width (ft)	Side Slope (1:V)	100 Yr WSE (ft)	Sectional Area (ft ²)	Velocity (ft.p.s.)	100Yr. Hydraulic Radius (ft)	Shear Stress (p.s.f.)
A-A	1.35	6.67	4	5	0.11	0.50	2.70	0.10	0.42
B-B	2.37	6.67	6	5	0.13	0.86	2.74	0.12	0.49
C-C	3.60	6.67	4	5	0.20	1.00	3.60	0.17	0.69
D-D	2.50	6.67	6	5	0.13	0.86	2.89	0.12	0.49
E-E	3.60	2.72	6	5	0.21	1.48	2.43	0.18	0.31
F-F	1.03	6.67	6	5	0.08	0.51	2.01	0.08	0.31
G-G	3.00	5.00	5	3	0.18	1.00	3.01	0.16	0.51
H-H	3.73	4.16	5	5	0.21	1.27	2.94	0.18	0.46
I-I	3.37	4.00	5	3	0.20	1.12	3.01	0.18	0.45

NOTE: Swale should be lined with "Straw with Net" turf reinforcement (Curlex Blanket or Eqv.) . Per Table 5607-1 in APWA Manual

Townhomes	Basement Type	MBOE Lt.	MBOE Rt.
9	Full	940.8	951.0
10	Daylight	951.2	940.8
11	Daylight	958.1	951.2
12	Daylight	963.9	958.1
13	Full	966.0	963.9
14	Daylight	957.4	964.9
15	Walkout	946.5	957.4
16	Walkout	960.3	960.0
17	Walkout	959.1	960.3
18	Walkout	950.2	959.1
19	Daylight	946.2	950.2
Estates			
23	Walkout	935.0	939.3
24	Walkout	939.3	939.2

Note:
AS GRADED PLOT PLAN REQUIRED FOR EACH LOT.



"AS-BUILT"
900.10
900.00 Indicates data replaced with "As-Built" information. All other data is as designed and has not been field verified.

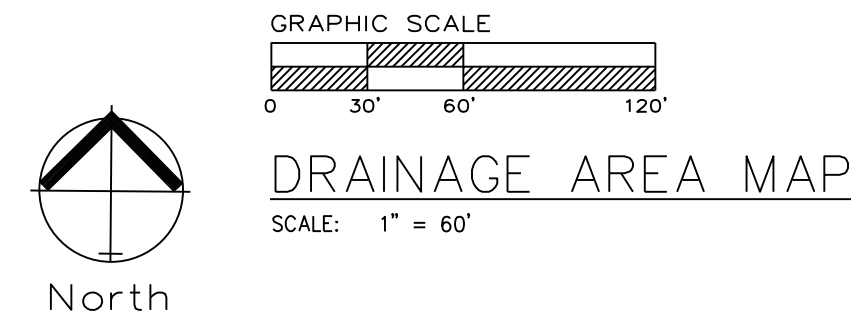
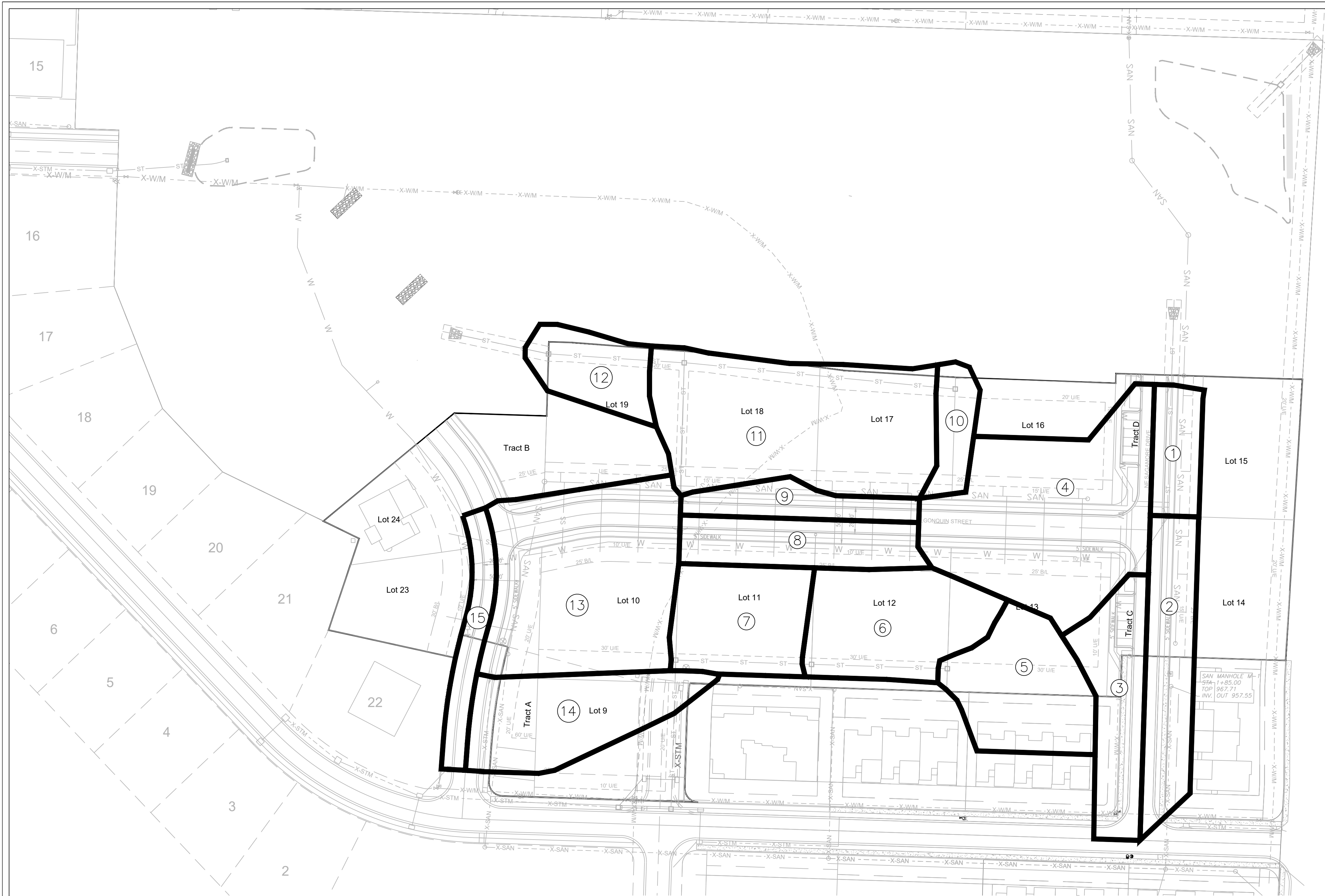
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Master Drainage Plan 2 of 3:
Spot Elevations
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project:
VILLAS OF CHAPEL
RIDGE LSMD
Issue Date:
April 10, 2020

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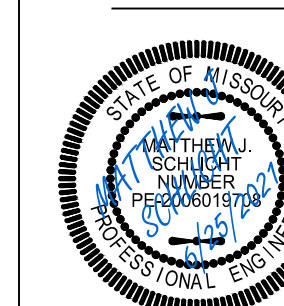
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LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri

Project:
VILLAS OF CHAPEL
RIDGE-LSMO
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Master Drainage Map 3 of 3:
Drainage Area Map
Construction Plans for:
THE TOWNHOMES OF CHAPEL RIDGE-2ND PLAT
LOTS 9-19 & TRACTS A-D
Lee's Summit, Jackson County, Missouri



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APWA STORM DRAINAGE "TC" COMPUTATIONS FOR : VILLAS OF CHAPEL RIDGE 2ND PLAT																										
						Surface types		Asph/ConcBus/Com		Dirt		Grass/Park		Lake		MultFam		SnglFam		Undev		Other				
		yellow areas are self computing				SURFACE CODES		A		B		P		L		M		S		U		Z				
		overwrite if necessary				"C" Values		0.90		0.87		0.60		0.30		0.90		0.66		0.51		0.3				
						Overwrite		Length - DN		Elev or Slope				SURFACE CODE		P=Paused		Overwrite		Slope or Elevations				TC COMPUTATION		
		TOTAL WATERSHED				OVERLAND FLOW - 100' MAX		if necessary						P		U=Unpaed		if necessary								
						SURFACE CODE		"C" VALUE		OVR/END		UP		DN		SLOPE		CHANNEL LENGTH		UP		DN		SLOPE		
						CODE		VALUE		LENGTH		ELEV		ELEV		%		F/S		VELOCITY		F/S				
AREA ID	TOTAL SQ.FT.	TOTAL ACRES	WTRSHD LENGTH	UP ELEV	DN ELEV	SURFACE CODE	"C" VALUE	OVR/END LENGTH	UP ELEV	DN ELEV	SLOPE %		P or U	CHANNEL LENGTH	UP ELEV	DN ELEV	SLOPE %	VELOCITY F/S	Cal Overland Flow T(I)	Min 5 Max 15 T(I)	Cal Channel One T(T)	Cal Channel Two T(T)	Total T@ 10	AREA ID		
POST																								POST		
1	6734.45	0.15	171.71	962.75	956.48	M	0.66	36.7	962.8	962.00	2.0		P	135.0	962.0	956.5	4.09	4.1	3.8	5.0	0.5	0.0	5.5	1		
2	15497.29	0.36	321.00	969.90	961.04	M	0.66	36.0	969.9	969.15	2.1		P	285.0	969.2	961.0	2.85	3.4	3.7	5.0	1.4	0.0	6.4	2		
3	14565.88	0.33	115.82	968.20	962.90	M	0.66	60.5	968.2	968.00	3.6		P	55.4	968.0	962.9	5.60	4.8	4.0	5.0	0.2	0.0	5.2	3		
4	38022.54	0.87	290.56	968.20	956.48	M	0.66	100.0	968.2	963.50	4.7		P	190.6	963.5	956.5	3.68	3.9	4.7	5.0	0.8	0.0	5.8	4		
5	17621.66	0.40	168.61	970.50	961.65	M	0.66	100.0	970.5	967.15	3.4		U	68.6	967.2	961.7	8.02	4.6	5.3	5.3	0.3	0.0	5.5	5		
6	19480.08	0.45	219.25	968.00	955.58	M	0.66	100.0	968.0	962.00	6.0		U	119.3	962.0	955.6	5.38	3.7	4.4	5.0	0.5	0.0	5.5	6		
7	15534.05	0.36	183.86	964.00	949.00	M	0.66	100.0	964.0	955.00	9.0		U	83.9	955.0	949.0	7.15	4.3	3.8	5.0	0.3	0.0	5.3	7		
8	12379.23	0.28	279.25	967.30	955.76	M	0.66	33.5	967.3	966.50	2.4		P	245.7	966.5	955.8	4.37	4.2	3.4	5.0	1.0	0.0	6.0	8		
9	7326.23	0.17	257.20	966.50	955.76	M	0.66	11.5	966.5	966.20	2.6		P	245.7	966.2	955.8	4.25	4.2	2.0	5.0	1.0	0.0	6.0	9		
10	5324.92	0.12	125.42	966.50	958.00	M	0.66	47.2	966.5	963.80	5.7		U	78.3	963.8	958.0	7.41	4.4	3.0	5.0	0.3	0.0	5.3	10		
11	38079.28	0.87	354.14	966.50	948.00	M	0.66	100.0	966.5	960.50	6.0		U	254.1	960.5	948.0	4.92	3.6	4.4	5.0	1.2	0.0	6.2	11		
12	9008.94	0.21	139.74	955.00	944.00	M	0.66	100.0	955.0	946.50	8.5		U	39.7	946.5	944.0	6.29	4.0	3.9	5.0	0.2	0.0	5.2	12		
13	36460.35	0.84	346.50	957.50	939.00	M	0.66	36.5	957.5	956.50	2.7		P	310.0	956.5	939.0	5.65	4.8	3.4	5.0	1.1	0.0	6.1	13		
14	18586.66	0.43	304.64	955.00	932.80	M	0.66	100.0	955.0	946.60	8.4		U	204.6	946.6	932.8	6.74	4.2	3.9	5.0	0.8	0.0	5.8	14		
15	6741.28	0.15	280.50	945.00	932.50	M	0.66	11.5	946.5	946.20	2.6		P	269.0	946.2	932.5	5.09	4.6	2.0	5.0	1.0	0.0	6.0	15		